STUDY OF INFORMATION SYSTEMS DEPARTMENT

FOR SCHERING USPPD

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SCHERING STUDY

- Introduction
- Findings
- Recommendations

INTRODUCTION

- Scope
- Methodology
- Schering staff interviewed

SCOPE

- This report has been prepared to assist Schering in evaluating its Information Systems department in order to improve its effectiveness, increase productivity and lower costs.

- INPUT has addressed interrelated management and organizational issues which impact costs, productivity and effectiveness. This examination explored current requirements as well as evolving or future requirements based on changes occurring within Schering, changes in technology and/or overall environmental changes.

- The major issues that were examined are listed below:

  - Appropriateness of organizational structure and functional units.

  - Clarity and effectiveness of objectives and motivations.

  - Pertinence of corporate policies.

  - Relationship of corporate and IS planning.

  - Adequacy of personnel recruiting and career development plans and practices.

  - Functionality of systems planning and prioritization mechanisms.

  - General productivity initiatives.

  - Adequacy of productivity and control measurements for management purposes.

  - Appropriateness of accomplishment and reporting methods.

SCOPE (continued)

- Involvement of the user community in the systems development process.

- Level of programming resources provided.

- Alternatives for providing processing services.

- Types of delivery mechanisms required (e.g., Information Center, Personal Computers, Micro-Mainframe Links, traditional applications, etc.)

METHODOLOGY INCLUDING SCHERING STAFF INTERVIEWED

- INPUT conducted an on-site review of the Information Systems department reporting to W.J. Hurley. The specific personnel who were interviewed as part of this review are listed at the end of the report. In general, the group included:

  - Mr. Hanson.

  - Mr. Hurley and the four managers reporting directly to him.

  - A representative group of their immediate subordinates.

  - A selection of IS personnel sufficient to present a balanced picture of Schering processes and activities.

  - A sample of end users.

- Procedures, reports, internal proposals and other written materials were reviewed as they relate to the subject of this study.

GENERAL OBSERVATIONS

- IS priority setting has improved during the past three to five years.
- IS productivity has improved during the same period.
- The improvement in priority setting and productivity occurred with little or no staff increase.
- The ratio of system development to maintenance work showed improvement over the last five years.
- IS morale has improved (but there is danger of decline due to resource constraints and changing corporate attitudes).
- Some systems are quite old (e.g., financial and marketing applications) and have questions of data validity or completeness.
- Users tend to concentrate upon problems in their immediate areas.
- Users are concerned about shortage of IS resources.
- Most users feel that the "Process" of systems justification leaves something out.
- Users feel that there are good/fair relations with IS.
- There is a surge toward PC use.
- Strategic planning for IS that integrates systems possibilities and plans for users with current project requests is limited.

GENERAL OBSERVATIONS (continued)

- There is not a comprehensive list maintained of all systems planned and under serious consideration in user areas.

- Insufficient attention is paid to data structures.

SYSTEM DEVELOPMENT

- Good:

  - The level of functional (user) knowledge is excellent. This is very important because it instills confidence in users, improves user productivity, reduces the chance of system failure and provides the opportunity for IS to insure that corporate business objectives are being served.

  - Good user relationships with systems personnel were evidenced by the comments of users. This promotes a cooperative atmosphere on system projects which is essential for successful work.

  - Good project management practices are shown in the techniques of estimating project time and cost, assigning personnel and reviewing work with users.

  - The systems staff reacted positively to comments/critique. This is important since it indicates that there is sufficient flexibility to consider new technology and techniques and adopt them where advisable.

  - Development techniques employing COBOL, on-line development, and other facilities are adequate, but improvements in generation of COBOL code and of applications are planned that are worth follow-up.

  - There is a good level of transfer of functional knowledge to staff which promotes system development productivity as well as staff retention.

  - The increasing amount of work that has been accomplished each year illustrates that there is a record of productivity improvement. This has helped to maintain confidence with users.

SYSTEM DEVELOPMENT (continued)

- Problems

  - A simpler means of reporting progress is needed to inform users versus the detail in MASS reports. This would encourage users to monitor progress more closely and assume more responsibility for meeting schedules.

  - There exists a lack of resources. This has an impact on working with users as well as on meeting user needs.

  - Consultant use is necessary to meet user needs but is widespread enough to present control problems and have a substantial cost impact on IS. Methods of consultant use can be changed to provide more control and lower costs.

  - The time required to review and discuss the lack of resources, user pressures, use of consultants and project justification process gives system development management a feeling that there is no time to plan.

  - There is a perception that better junior staff members (1-2 years with Schering) may not be retained to the extent desired.

  - There is not enough knowledge of the potential of PC use and applications that are suitable for it. This limits the extent to which Development can encourage users to solve their own problems or integrate the use of a PC into the solution of a system problem.

  - Users do not fully assume responsibility for projects in most cases. This results in additional work for the IS staff and possible delays in projects.

SYSTEM DEVELOPMENT (continued)

- The IS staff needs to develop more consulting (i.e., marketing) skills. This could encourage users to accept more responsibility and to become more appreciative of the resource constraints.

INFORMATION FACILITIES (OPERATIONS)

- Good:

  - Information Facilities has demonstrated that it can absorb work from other sites and expand capabilities to support new types of equipment and software such as the IBM 4341 and Hewlett Packard equipment and DSS related software (Gateway and Focus).

  - A reorganization of staff and increase of workload have resulted in improved productivity.

  - The monitoring of work with users and use of application specialists indicates that there is well managed service to users.

  - Planning is good as evidenced by steps to improve operational support, consolidate work, and anticipate software support needs.

  - The attempt to provide career paths out of and into IS in conjunction with current planning is very important because it promotes user knowledge of information systems and appreciation of user needs in IS.

  - Good technical support to system development and DSS is provided by Information Facilities. This ensures that problems are much less likely to occur when software facilities are utilized.

- Problems

  - A simple form of reporting service levels and problems is not available. This type of reporting can be used to assure users that performance is good as well as to explain problems before they are magnified.

  - There is not enough informal user relations. Informal contacts can aid in learning about and diagnosing problems.

- Information Facilities has not considered the redundancy in I/O caused by user PC applications, sufficiently. There are opportunities to reduce input, for example, by downloading data to meet a user need after it has been key-entered for an IS application or to edit and validate data on a PC before it is supplied to an IS system. Output could also be transmitted to a PC for reformatting and printing to meet user purposes.

DSS

- Good:
  - The idea of offering a high level of software support for IS facilities and/or PC's to meet user needs expeditiously is broad and well conceived.
    - The concept promoted what other organizations have referred to as an Information Center. This has been a successful method of serving users.
    - General aid in the use of PC's was also undertaken.
  - The DSS group achieved access to information and demonstrated the viability of the approach.
- Problems:
  - Management:
    - The direction and coordination of personnel on assignments in user areas has resulted in questions about the DSS office and its purpose.
    - Discussions between the Director and users have convinced users that there is a misperception of their needs and interests.
  - Personnel:
    - Users report that the DSS staff cannot discuss PC's or software at a level that is meaningful. They wonder why the staff volunteered comments.

DSS (continued)

- . The DSS staff has also shown a lack of interest in user problems and activities.

- The DSS staff has suggested questionable PC applications to users that makes it seem like badly implemented missionary work is being carried out.

- Technical support:

  - . The DSS group has demonstrated that it can achieve access to information although it has not engendered confidence in the users it has worked with.

  - . The PC support that members of the group have contributed has been judged to be inadequate. This is most important to users.

- Purpose of Group

  - . Users feel that there is an overlap with Systems Development. Some users stated that they felt Systems Development rather than DSS should be discussing needs with them. All users asked us to explain or discuss when they should use DSS rather than Systems Development.

  - . Users also feel that the DSS function raises questions about the project justification process since this function constitutes an additional method of obtaining resources.

  - . The role of DSS does not seem clear in practice since small PC jobs as well as IC oriented assignments like the interim marketing database are being discussed with users during meetings.

CONSULTANT USE

- The use of consultants is necessary in view of the fact that the demands for system work exceed IS resources by a substantial margin.

- The use of consultants is inefficient since they need time to acquaint themselves with user needs and seldom have the degree of interest necessary to fully think through the needs of users. This means review of their work and understanding of user needs is necessary.

- It can be risky to rely upon consultants since they may not have a high level of concern and may think they will not have to live with results of their work.

- The cost of consultants is much higher than the cost of internal staff since it includes overhead, corporate profit, and an allowance for idle days on top of a high salary.

- There is an illusion of flexibility in the use of consultants versus hiring permanent people since it appears that they can be obtained to meet a short term and/or specialized need.

USER RELATIONS

- The comments of users indicate that relations with IS are good to very good on the middle management level. In some cases, IS staff members are almost regarded as members of the user department. This helps IS to work effectively with users. IS does hold back to some extent in proactiveness, since there is a fear of generating more unfulfillable requests.

- Productivity:

  - One aspect of productivity in reference to user relations is strategic: What can data processing do for Schering? This question is not fully explored in regard to user functions. It comes up mostly in regard to recognized needs or systems implemented elsewhere first like MRP.

  - The other aspect of productivity for users questions: How can an existing application work better? This question tends to be dealt with only when business needs justify work upon a system.

- There needs to be more frequent top level informal contacts between IS and user departments. This will provide more support for the project development process and encourage user management to become aware of all the system needs and plans in their departments.

- There is relatively little personnel transfer between IS and other departments. More transfer should be encouraged since it increases the system capability of user areas and functional knowledge within IS.

IS/USER PERCEPTIONS

ISSUE	IS	USERS
Progress reports	Good	Don't understand; Frustrated
Meeting schedules	Good/excellent	Fair/good
IS work habits	Good	Excellent to fair depending on staff members
IS resource availability	Very tight	More output could be possible with present resources

DIVISION/CORPORATE IS RELATIONS

- There is a difference in the System Planning Approach of these groups:
  - Immediate business needs are paramount for the division and the long term direction is of prime importance to the corporate group.
  - Resource constraints magnify differences in viewpoint. The IS department of USPPD does not have sufficient resources to address current needs as well as to review all the factors that could have an impact on information systems in the future.
- The corporate responsibilities include:
  - Corporate wide IS guidance.
  - Providing information on IS technology to corporate management.
  - Providing technical assistance.
  - Establishing an economical central processing facility that offers capacity and technical facilities to divisions.
  - Demonstrating the benefits of IS advancements through "Centers of Excellence".
- The corporate role appears to be:
  - Unclear or not understood by divisions.
  - Potentially in conflict with divisional business needs.
- There is need for an overview to outline the corporate IS direction and the benefits that it can achieve.

IS CONTRIBUTIONS: APPLICATIONS

- IS has an excellent record for achieving efficiency and cost savings in application development and operation.
- Existing tasks have been performed more effectively.
- User functional units have been enabled to do tasks not possible before through new manufacturing and marketing systems.
- New products and revenue sources have been supported.

RECOMMENDATIONS

- Planning process
- Planning organization
- Decision system support
  - Function
  - Organization
- User relations
  - PC support
- Locus of processing
- IS Development Group
- IS Operations Group
- Consultant strategy

PLANNING PROCESS

- Target the critical planning gaps such as the gaps in planning between current user requests to IS and related work being implemented on PC's in user areas. Critical gaps could also exist between the data structures used in IS and those being evolved by users.

- Initiate strategic MIS planning.

  - Recognize that the goal should be to be able to respond to new technology or business opportunities adequately.

  - Begin on the common sense level. An assessment should be made of likely changes in technology and techniques of system development work elsewhere that could lead to system changes at USPPD.

- Encourage user system planning and review processes.

  - The system needs and PC activities within each user department should be reviewed internally so that redundant efforts are reduced and common or related needs can be integrated.

  - Information should be fed uphill from department planning so that department management becomes aware of the extent of system activities as well as of the most significant needs.

- Improve informal planning at upper management levels.

  - Introduce more flexibility into the formal process. Have bottom up meetings in user areas to discuss what system needs exist and how they should be addressed.

PLANNING PROCESS (continued)

- Encourage interdepartment knowledge of more important system needs. A meeting among user personnel which discussed needs in all departments would encourage understanding between departments and more appreciation of the process of justification.

- These steps would improve "user relations" for IS.

- A recommended planning organization is outlined on the following page.

PLANNING ORGANIZATION

VP - IS

DIRECTOR - PLANNING

SYSTEMS PLANNING	DATA BASE PLANNING	BUDGETING REPORTING
• 1-2 people	• 1 person and director for 1-2 years	• Current standalone function
• Tactical Planning: Facilitator with Development Group Strategic Planning: Document longer range system plans with users and Development Group	As role becomes more technical could be transferred/split into Data Base Administration	

DSS FUNCTION

- This appears to be a useful concept.
  - It supports the end user computing trend.
  - It offers assistance with new technology to user areas.
- As a separate function it appears to be counterproductive at Schering.
  - The Development group is already very knowledgeable on user functions and data needs.
  - The Development group has good relations with users. Users expect to obtain aid from this group to define needs.
  - The activities of the DSS group are not oriented toward systems planning initiated by users.
- The activities of the DSS group does not address the strategic need to link user-based systems to traditional host applications.

DSS ORGANIZATION

- INPUT recommends that the current DSS unit be abolished.
- People and functions should be reallocated as outlined below.
  - The activities related to data structures should be assigned to a (new) planning function.
  - PC control should be assigned to IS Operations which is experienced in handling activities related to equipment in user areas.
  - Standalone PC support should be assigned to IS Operations which can handle this work together with PC controls.
  - Support for distributed data access should be handled by IS Operations which is aiding DSS with this function at present.

USER RELATIONS

- User relations will be improved by concrete actions.

  - Absorbing DSS functions into other IS Groups and letting the system development group handle all system needs with users will eliminate confusion and strengthen user relations.

  - Improving standalone PC support will also promote better user relations.

- Increased system planning activities with users will remove much frustration and animosity inherent in having tactical project planning decide issues of strategic importance to users. The relation of project requests to a set of business related activities will be made more visible.

- More informal communications can be extremely important in improving user relations since they can lead to questions and explanations that reduce or eliminate problems.

PC SUPPORT

- A PC census is necessary, but not sufficient to encourage more effective PC use.

- More proactivity is needed so that users can gain insight into systems problems and methods at addressing them.

  - Software and hardware knowledge should be disseminated by Operations. Specific advice should be given on:

    . Tools including programming languages, operating systems, database packages and spreadsheets.

    . Techniques of using software packages to address problems.

    . Applications that are being used successfully at Schering and elsewhere.

  - Data downloading to PC's to meet user needs should be explored by Development.

    . Extracts of data from host files could be analyzed and reformatted on PC's to meet user business needs.

    . Software could be developed on PC's and on the 4341 that would allow input from user areas to be fed into existing 4341 applications as well as into PC based applications.

  - Distributed applications utilizing PC's and the 4341 (or Memphis host) should be considered by Development since they could take advantage of user work with PC's.

- The dissemination of PC information and applications through a division wide users group should be considered. This would reduce redundant work and improve the effectiveness of PC use.

LOCUS OF PROCESSING

- IS should explore opportunities to centralize applications when user application contracts can be established and met and there are not evolving applications functions which require continuing attention. Decentralized applications should be implemented to meet key business needs or where application contracts/response times create any doubt as to support.

- When considering centralization over the next two to four years, the determinants should include:

  - The ability to enter into user/application contracts.

  - The identification of evolving applications/functions, e.g.,

    . Support for Information Center or Decision Support types of applications.

    . The design and test of applications using marketing data.

    . Gradual upgrading of financial systems.

  - The feasibility of micro mainframe applications.

INFORMATION FACILITIES (OPERATIONS) GROUP

- This group should absorb the following DSS functions as noted before:
  - PC ordering/justification.
  - Support of PC software.
  - Review and implementation of software products that provide access to data (with concurrence of system development).
  - Pursue steps to reduce PC and 4341 or Memphis I/O: Downloading data, editing data for entry uphill, output to PC for distribution. (With concurrence of system development).
- Improve informal contact with users.

CONSULTANT STRATEGY

- The current strategy pays too high a price for flexibility as noted previously.
- The $1 million spent on, generally, "body shop" consultants should be reallocated into three categories (with ball park allocations).
  - Permanent staff (or semi-permanent on long-term contracts): 25%
  - Super consultants (with functional/technical skills not in-house); these consultants could also train in-house staff: 50%
  - Body Shop people, for newly-added projects: 25%
- These moves should reduce control problems for IS as well as save costs.

INTERVIEWS

IS

- W. Hurley
- M. Alexion
- A. Rosenthal
- M. Studney
- M. Dietz
- W. Fallon
- P. Mazzone
- P. Brady
- J. Russell
- R. Thomas
- J. Kennedy
- G. Spellmayer
- M. Peressini

OTHER SCHERING

- R. Hanson

- Finance
  - E. DeSimone
  - R. Bucho
  - L. Thompson
- Quality Assurance
  - M. Kalm
  - L. Solis
- Marketing
  - S. Schneider
  - J.P. Garnier
  - J. Weintraub
  - C. Fuller
- Manufacturing
  - J. Nine
  - C. Fleming
  - K. Pratt

OTHER SCHERING (continued)

- W. Shea
- S. Rothacker

- Corporate (C.I.S.)
  - R. Regazzi
  - J. Hartigan